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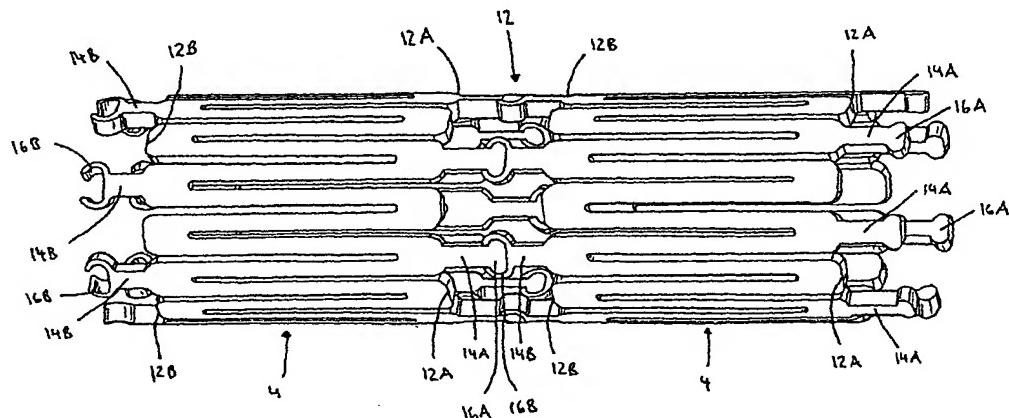
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4 March 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MRI COMPATIBLE STENT AND METHOD OF MANUFACTURING THE SAME



(57) Abstract: The present invention relates to expandable metal stents (2) having an abluminal wall, a luminal wall and a radial wall thic therebetween, with struts (3) defining through-apertures in the wall, the stent further having a longitudinal axis and defining a plurality of expansible rings (4) arranged adjacent one another along the longitudinal axis of the stent, each of the rings defining at least one bridge strut (14A, 14B), and adjacent rings being linked by a bridge (12) extending between adjacent bridge struts on adjacent rings, the stent being characterised in that the bridges (12) exhibit reduced electrical conductivity throughout the wall thickness, and there are a plurality of said bridges, distributed throughout the length of the stent and configured and arranged to divide the tubular structure into axially spaced and electrically insulated sections. The present invention relates furthermore to a method of manufacturing such a stent.

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP 03/02708

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61F2/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 01888 A (SCIMED LIFE SYSTEMS INC) 11 January 2001 (2001-01-11)	1,12-17, 19
Y	page 2, line 13 - page 5, line 9 figures 5,6	2-6,18
P,X	----- WO 02 053066 A (ADVANCED CARDIOVASCULAR SYSTEM) 11 July 2002 (2002-07-11)	1-4,6,7, 14-19
P,Y	page 10, line 7 - page 12, line 23 figures 7,8,11,12	5,6
Y	----- WO 00 15151 A (ISOSTENT INC) 23 March 2000 (2000-03-23) page 8, line 27 - page 10, line 13 page 11, line 18 - line 31 figures 5,6	2-6,18
	----- -/-	

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority, claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

5 August 2003

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/02708

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 741 327 A (FRANTZEN JOHN J) 21 April 1998 (1998-04-21) column 8, line 18 - column 11, line 38 figures 7-19 -----	2-6,18
P,A	US 2002/188345 A1 (PACETTI STEPHEN DIRK) 12 December 2002 (2002-12-12) the whole document -----	1-19

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/02708

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: 24 because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Diagnostic method practised on the human or animal body
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple Inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-19

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-19

A tubular radially expandable metal structure comprising a plurality of expansible rings arranged adjacent one another, and adjacent rings being linked by at least one bridge, whereby said bridge exhibits reduced electrical conductivity.

2. claims: 20-23

A method of manufacturing a tubular radially expandable metal structure comprising a plurality of expansible rings arranged adjacent one another, and adjacent rings being linked by at least one bridge, whereby said bridge exhibits reduced electrical conductivity.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Claims Nos.: 24

Rule 39.1(iv) PCT - Diagnostic method practised on the human or animal body Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/02708

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 0101888	A	11-01-2001	US	6409754 B1	25-06-2002
			CA	2373780 A1	11-01-2001
			EP	1191904 A1	03-04-2002
			JP	2003503152 T	28-01-2003
			WO	0101888 A1	11-01-2001
			US	2002151964 A1	17-10-2002
<hr/>					
WO 02053066	A	11-07-2002	US	6565599 B1	20-05-2003
			EP	1345554 A1	24-09-2003
			WO	02053066 A1	11-07-2002
			US	2003191524 A1	09-10-2003
<hr/>					
WO 0015151	A	23-03-2000	AU	6144599 A	03-04-2000
			WO	0015151 A1	23-03-2000
<hr/>					
US 5741327	A	21-04-1998	US	6293966 B1	25-09-2001
<hr/>					
US 2002188345	A1	12-12-2002	NONE		
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